REMARKS

Claims 1-10 are pending. By this Amendment, a replacement Abstract is provided.

Applicants gratefully acknowledge the Examiner's indication in the Office Action that Claim 8 contains allowable subject matter.

In the Office Action, the Examiner objects to the Abstract. Applicants respectfully submit that the replacement Abstract filed herewith obviates the objection. Withdrawal of the objection to the Abstract is respectfully requested.

In the Office Action, the Examiner rejects Claims 1-7 and 9-10 under 35 U.S.C. § 102(b) over U.S. Patent No. 5,198,746 to Gyugyi, *et al.* (Gyugyi). The Examiner also rejects Claim 3 under 35 U.S.C. § 103(a) over Gyugyi in view of U.S. Patent No. 6,476,521 to Lof, *et al.* (Lof). The Examiner also rejects Claims 4, 6 and 9-10 under 35 U.S.C. § 103(a) over Gyugyi in view of U.S. Patent No. 3,883,724 to Pradhan, *et al.* (Pradhan). These rejections are respectfully traversed.

Exemplary embodiments disclosed in the present application and variously encompassed by the pending claims, relate to a method of determining an equivalent impedance of a transmission section of an electrical network. The transmission section is represented as having at least two interfaces with other sections of the network. For each interface, a voltage phasor and a current phasor flowing through the interface are determined from simultaneously made measurements at the interfaces. From the phasors, the equivalent impedance is calculated. The required simultaneousness of the phasor measurements can be achieved by means of Phasor Measurement Units (PMUs) that are synchronized via

the Global Positioning System (GPS) (see, for example, the present application at the paragraph spanning pages 9-10).

Gyugyi discloses a series impedance compensation system for a set of power transmission lines (e.g. column 1, line 8) and is concerned with avoiding disadvantages of conventional capacitive series compensation. Gyugyi proposes to inject dynamically, *i.e.*, responsive to demand, an AC voltage e_c into a transmission line (column 8, line 27). The AC voltage has a distinct phase and amplitude relationship with the transmission line current i_c (column 8, lines 28 and 35) and is generated by a solid state switching power converter (reference number 50). An internal control methodology (column 12, line 40) uses a single current vector describing the three line currents i_a, i_b, i_c instantaneously (column 12, line 45). The amplitude i_{dqs} and angle θ are obtained via a vector magnitude calculator 94 and vector phase-locked loop tracker 96, based on the orthogonal components i_{ds} and i_{qs} as derived by transmission line current vector resolver 92. The detailed operation of the three aforementioned means 92, 94, 96 is explained at column 14, line 43 to column 15, line 48 and is schematically depicted in Figure 4.

Gyugyi fails to disclose or suggest a transmission section having at least two interfaces with other sections of an electrical network, as recited for example in Claim 1 of the present application. Gyugyi shows only one control interface 126 to the internal control flow diagram 100, as indicated for example in Figure 4, which is used to input control parameters or commands.

Gyugyi likewise fails to disclose or suggest determining, for each of the interfaces, a voltage phasor at the interface and a phasor of a current flowing through the interface, wherein the measurements at the different interfaces are made

essentially simultaneously, as recited in Claim 1. In contrast, Gyugyi discloses that signals representing three line currents i_a, i_b, i_c as determined by current transformers 64a, 64b, 64c, are immediately converted into a single current vector.

Gyugyi also fails to disclose or suggest computing, from the essentially simultaneous voltage and current phasors of each of the interfaces, values of impedances constituting the equivalent circuit, as encompassed by Claim 1. In contrast, Gyugyi teaches that the inductive line impedance X_L of the transmission line is not calculated, but reduced by the injected AC voltage e_c. See, for example, column 8, line 25.

Accordingly, Gyugyi fails to disclose or suggest Claim 1, and likewise fails to disclose or suggest Claims 2-7 and 9-10 for at least the same reasons. Lof and Pradhan, when considered both separately and in combination, fail to overcome the deficiencies of Gyugyi set forth above. Accordingly, the various combinations of Gyugyi, Lof and Pradhan applied in the Office Action, fail to disclose or suggest the pending claims.

Withdrawal of the rejection of Claims 1-7 and 9-10 under 35 U.S.C. § 102(b) over Gyugyi, the rejection of Claim 3 under 35 U.S.C. § 103(a) over Gyugyi in view of Lof, and the rejection of Claims 4, 6 and 9-10 under 35 U.S.C. § 103(a) over Gyugyi in view of Pradhan is respectfully requested.

Applicants respectfully submit that the application is in condition for allowance. Favorable consideration on the merits and prompt allowance are respectfully requested. In the event any questions arise regarding this communication or the application in general, please contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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